

minimum deviation can be secured automatically for a battery of nine, ten, or eleven equilateral prisms. The light from the sixth prism of a series like the above (figs. 2 and 4) is received on a totally reflecting prism, from which it passes to a second battery in a reversed position. By a very simple contrivance the totally reflecting prism adjusts itself, so as always to hold a symmetrical position between the two batteries, the faces including the right-angle of the prism being always perpendicular to the light passing out of one battery and into the other. But as a long connexion, such as this arrangement involves, necessarily works imperfectly (however true theoretically), I at once double the dispersive power and halve the effective length of the connexion, by causing the light to be reflected so as to re-traverse the whole battery, and to be viewed by a fixed telescope whose optical axis is in part coincident with that of the collimator. The motion of adjustment thus has to be communicated to the totally reflecting prism, and the effective length of connexion is the same as for a single battery. I hope to be able to describe this plan in full at the next meeting of this Society. It need hardly be said that the arrangement is only useful where there is abundance of light. One secures by means of it a dispersion corresponding to that given by 22 or 23 equilateral prisms (according to the way in which the light is sent back through the battery); but the power can be reduced prism by prism to any extent which may be requisite.

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*The Satellites of Uranus.* By Richard A. Proctor, B.A.

It has been with extreme regret that I have seen a passage in my *Other Worlds* interpreted by a Vice-President of this Society as a setting up of my mere opinion against the telescopic observations of our President. I hasten to correct this misinterpretation. In expressing the opinion that Sir William Herschel was not deceived as respects the four satellites of *Uranus* which remain unidentified, I was but doing what Admiral Smyth, Professor Nichol, and Professor Grant, had already done (simply on the score of Sir William Herschel's wonderful accuracy as an observer), I am convinced that Mr. Lassell (whose name, by the bye, I had not mentioned in the matter) would be the last to condemn this confidence in the work of an astronomer whose achievements he has so worthily emulated.

I wrote, it is true, with full knowledge that Mr. Lassell has not detected other satellites than *Umbriel*, *Ariel*, *Oberon*, and *Titania*; and with full knowledge also of the qualities of his four-feet mirror. But Sir William Herschel's observations indicate a variability in the lustre of the satellites quite sufficient to account for Mr. Lassell's want of success (so far): and though the light-gathering power of Herschel's four-feet mirror was doubtless inferior to that of Mr. Lassell's, yet it must be remem-

bered that Herschel could not see the satellites when his telescope was used (like Mr. Lassell's) as a Newtonian.\*

As Professor Pritchard, at a recent meeting of this Society, spoke of himself as one of scarce three (he thought) present who had read all Sir William Herschel's papers, he will not need to be reminded that Herschel (to use Professor Grant's words) "asserted his firm belief in the existence" of these other satellites. I confess that I should require *very* strong negative evidence to force on me the conviction that Herschel was mistaken on any occasion when he expressed confidence about an observation. Writing with the remembrance of Sir William Herschel's confidence strong upon me, I said in *Other Worlds* that "one cannot read the account of Herschel's method of procedure without feeling that no amount of mere negative evidence can be opposed effectively to the positive information he has left respecting those four orbs." Is this, I would ask, to be considered as an inexcusable attack (as Professor Pritchard has implied) on our esteemed President, who has, indeed, taught us to believe in unseen satellites, *since his name will for all time be associated with the discovery of an eighth Saturnian satellite long after astronomers had concluded that but seven exist?*

### *Further Note on the Change of the Colour in Jupiter.*

By John Browning.

Since I sent in my Note in reply to the Astronomer Royal's remarks, which appeared in his Report to the Board of Visitors, I have been favoured with a copy of a paper by Prof. A. M. Mayer, of Lehigh University, Pennsylvania, U. S. As this paper appears to me to fully corroborate the substance of the three papers I have had the honour of giving to the Society, I now venture to present some extracts from it:—

"Every astronomer who, during this fall and winter, has made careful observations of *Jupiter*, must have remarked the unusual colours of his disk and belts, and the remarkable forms and mutations which the latter have frequently presented."

\* \* \* \* \*

"The colour of the planet next demands our attention, and surely no one familiar with the usual tints of the belts and of the general surface can fail to remark the unusual colours which this drawing exhibits.

"*Jupiter's* disk generally is of a light yellow colour crossed by

\* Professor Grant thinks it likely that Sir William Herschel refers to his 20 feet mirror, not to the 40-feet one (which was difficult to use) in his account of the discovery of these satellites. But although Sir W. Herschel does not mention specially the 40-feet telescope, it is evident from his remark about the use of the "front-view" (coupled with his original description of that method of using large reflectors) that it was his great mirror he employed. Otherwise, indeed, the whole matter would be infinitely perplexing.